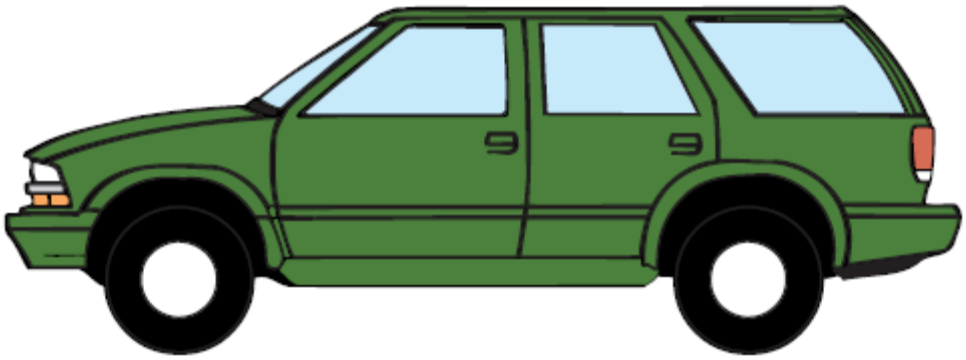
Geometry 6.5 Notes: Trapezoids and Kites (pp 356-358)

A. The shape of the driver's side window on the vehicle below is a *trapezoid*. A **trapezoid** is a quadrilateral with exactly one pair of parallel sides. Trace the window and mark the parallel sides with arrows. Trace the other two side windows, mark any parallel sides, and name the shapes.



B. The front and back windows of the vehicle are *isosceles* trapezoids. Trace one of these windows and mark the parallel sides with arrows. What do you think makes a trapezoid *isosceles*? What might be some properties of an isosceles trapezoid?

front

back

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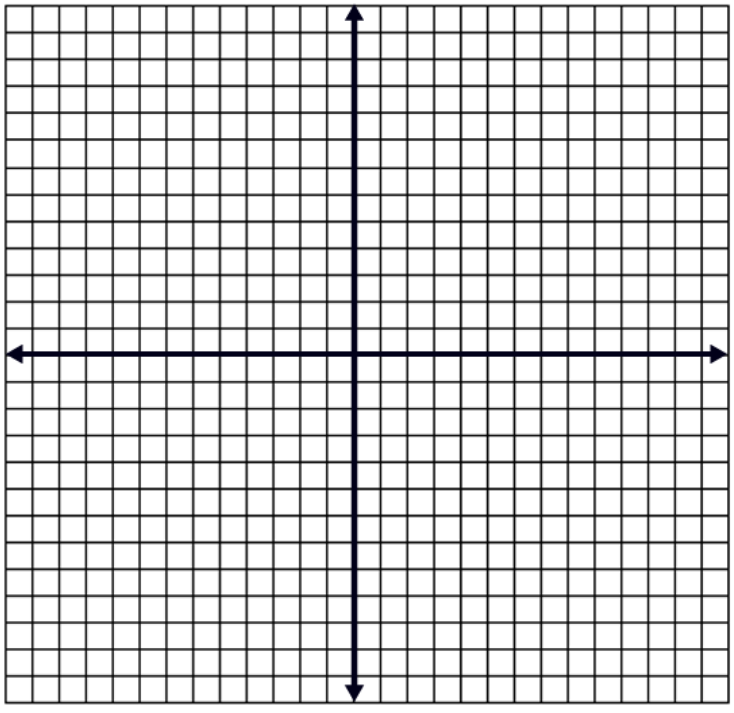
Properties of Trapezoids/Isosceles Trapezoids

Examples.

1. CDEF is an isosceles trapezoid with CE = 10 and $m\angle E = 95°$. Find DF, $m\angle C, m\angle D, \& \, m\angle F$.

2. The vertices of WXYZ are W(-1, 2), X(3, 0), Y(4, -3), and Z(-4, 1). Show that WXYZ is an isosceles trapezoid.



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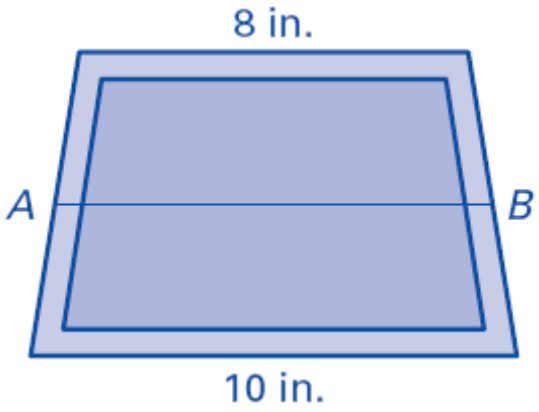
Midsegment

Midsegment theorem for a Trapezoid:
(Proof is on page 839 in your textbook)

3. Example: A potter crafts a trapezoidal relish dish, placing a divider, show by $\overline{AB}$ in the middle of the dish. How long must the divider be to ensure that it divides the legs in half?



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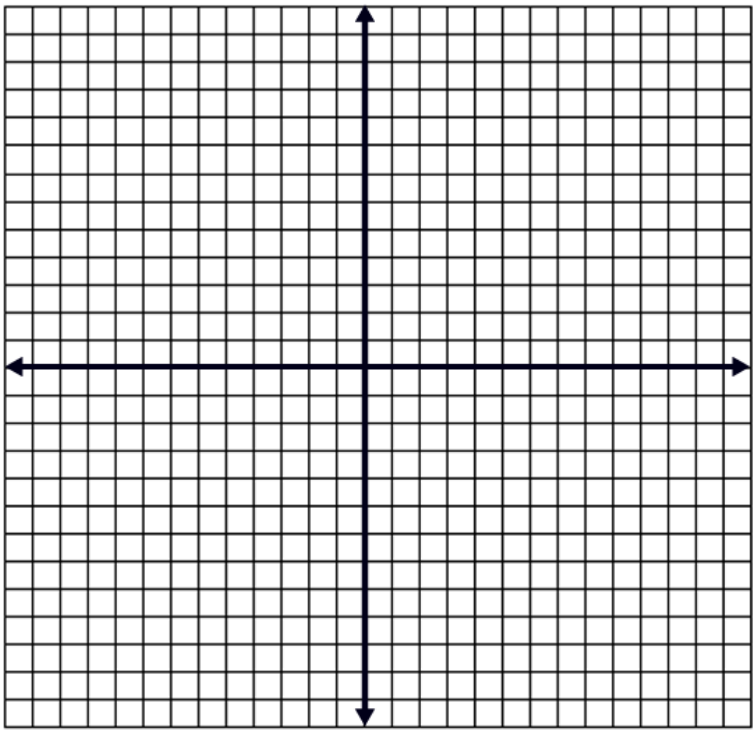
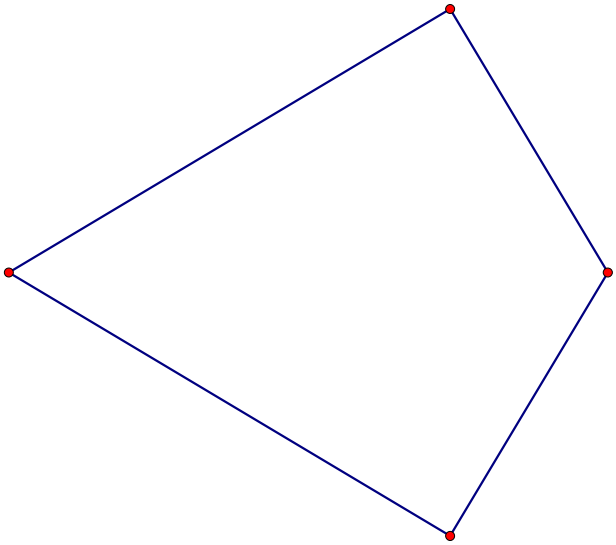
4. Guided Practice: The vertices of KLMN are K(-3, 5), L(0, 7), M(2, 7), and N(3, 5). Is KLMN are trapezoid? If it is, determine if it is isosceles and find the length of its midsegment.



Kite:

Sketchpad Demonstration



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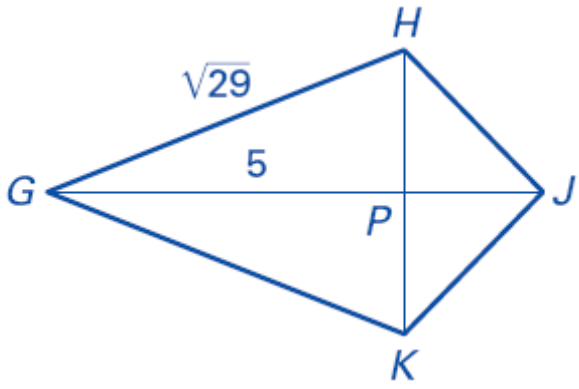
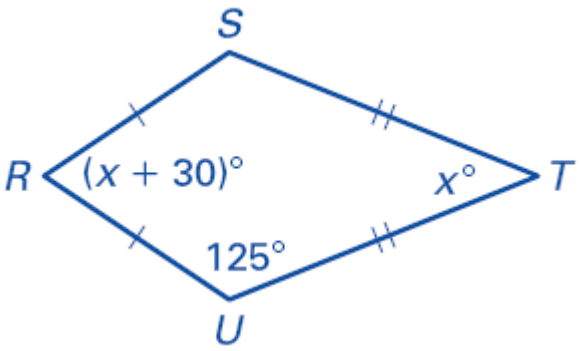
Examples

5. GHJK is a kite. Find HP.



6. RSTU is a kite. Find $m\angle R, m\angle S, \& m\angle T$.



"Lasseter! Go in for ... What? You're *still* dead?!"

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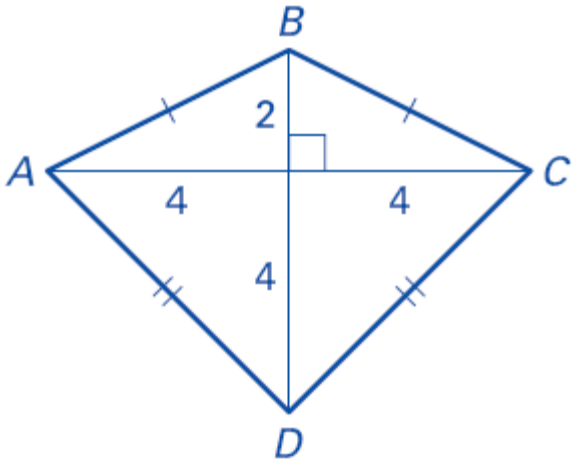
Guided Practice.

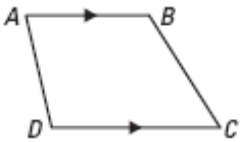
7. Find the length of each side of the kite shown.



8. If $m\angle ADC = 92° \;\&\; m\angle ABC = 128°$, find $m\angle BAD \;\&\; m\angle BCD$.

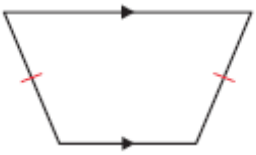
9. What is the difference between a kite and a trapezoid?

10. Name the bases of trapezoid *ABCD*.

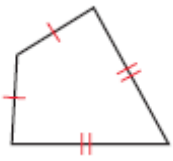


Decide whether the quadrilateral is a *trapezoid*, an *isosceles trapezoid*, a *kite*, or *none of these*.

11.



12.



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13. Decide whether the quadrilateral is a *trapezoid*, an *isosceles trapezoid*, a *kite*, or *none of these*.